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Botanical Notes, 1919-1920.

FRANK U. G. AGRELIUS.

UNUSUAL SEASONAL ACTIVITIES OF CERTAIN PLANTS, 1919-1920.

Continuing our custom begun in the latter part of 1915, we give a list of plants showing more or less unusual seasonal activities. These have all been observed by the author, and all in or near Emporia, Kan., unless otherwise specified. The plants are arranged, as far as well may be, according to Gray's Manual, seventh edition. The list follows:

Allium mutabile Michx. August 31, 1919, blooming in abundance on the North Fork of the Verdigris, in Lyon county.

Polygonum aviculare Linn. November 8, 1919, blooming (?).

Delphinium consolida Linn. (?). Cultivated larkspur. October 12, 14, 16, 23; November 8, 1919.

Lepidium virginicum L. (?). September 25, 1919, in bloom.

Trifolium repens L. October 31, 1919. Blooming.

Mellilotus officinalis (L.) Lam. September 13, 30, 1919. Blooming.

Tropæolum majus Linn. August 19, 1919, blooming second time this season. October 4, 8, 1919, blooming pretty well.

Acer saccharinum L. February 23, 1920, staminate flowers blooming, Normal campus.

Vitis labrusca Linn. Concord grape. August 19, 1919, blooming. These formed small green grapes later; did not mature.

Viola cucullata Ait. October 4, 1919, blooming. October 12, 1919, one not fully open.

Œnothera speciosa Nutt. September 22, 1919, blooming.

Viburnum opulus sterilis L. July 26, 1919, our own plant has one ball of bloom on it.

Diervilla florida Sieb. & Zucc. Weigela rosea. Blooming September 5, 27; October 4, 8, 12, 14, 16, 1919.

Erigeron ramosus (Walt.) B. S. P. Blooming October 8, 1919. Blooming quite well October 12. Abundant on October 17. (Heavy frost October 17, 1919.) October 23, 1919, doing well (blooming).

Taraxacum officinale Weber. December 18, 1919, out soon as ice was melted off. December 25, blooming. December 29, 1919, apparently forming a good seed ball. Special note: The winter season of 1919-'20 appears to have been a very unseasonable one for this plant. The lack of snow as a covering during January and February, with the alternate freezing and thawing, was detrimental even to this exceptionally hardy plant. They resumed good growth by the last week in March.

The exceptionally early appearance of winter prevented the renewal of blooming to be expected if the autumn had been warm, following the protracted and severe drouth of the summer of 1919.

FURTHER NOTES ON POLYCOTYLEDONY IN CERTAIN PLANTS.

At two previous sessions of the Academy, viz., in 1918 and 1919, we have given some notes along the line of unusual polycotyledony in certain plants. We have been continuing our experiments with the castor bean, *Ricinus communis* (?), and the tomato, *Lycopersicum esculentum* Mill, and have some additional data, but rather little progress to note. We discovered two specimens of tomato with three cotyledons. We planted these among the other tomatoes with no attempt at isolation. From these we picked and saved two fruits. From these, in turn, we expect to secure more plants and to plant them in a more secluded place this year. We have also noted two more specimens of tomato in this spring's seedlings having three cotyledons each. We have these marked for testing. In the spring of 1919 we planted several castor-bean seeds, as planned, from a plant noted the previous year. It was tricotyledonous. Among these we found a specimen with three cotyledons and have again saved the seed from it, and we are expecting to plant quite a few seeds this spring. We planted none last year but those from the chosen plant of 1918, but made no attempt to prevent cross-pollination.

The tricotyledonous castor bean of 1919 was certainly abnormal, as it had such evident seed leaves of the unusual number. Two of these cotyledons were abnormal in having an extra large size. In addition we noted that these seeds were abnormally thick in their smaller diameter. They seemed to give external evidence of their abnormal nature. However, only one of the seeds planted—a dozen or more—showed more than two cotyledons.

A Preliminary List of Insects of the Sorghum Field.

Wm. P. Hayes.*

Large numbers of insects are found in association with sorghum plants in the fields of the Great Plains area. Some feed on the plant, some are predatory, and others are casual visitants seeking shade from the sweltering sun or protection from unfavorable conditions, such as damp or dry soils.

Under a new project, "Insects Injurious to Sorghums," recently established by this department, a thorough study of the insects of the sorghum field was begun during the summer of 1919. A necessary requirement for such a work was the preparation of a list of the more common species found in the sorghum fields. In view of the recent introduction into America of the European corn borer, *Pyrausta nubilalis* Hübner, in broom corn from Europe, a survey of the Western states where this broom corn was ultimately distributed is being planned by the United States Bureau of Entomology. As this list, together with the more important references to the subject, may be of some value to those engaged in the survey, it seems advisable to present it at this time, even though it is not complete.

The writer wishes to acknowledge his indebtedness to Mr. Warren Knaus, who determined the Coleoptera mentioned in this list, and to S. A. Rohwer and A. B. Gahan, who determined most of the Hymenoptera, and also to express regret that the numerous species of Diptera, now in the hands of a specialist, are not ready for presentation at this time.

ORTHOPTERA.

Hesperotettix speciosus Scudd. (Injures sorghum in southern Kansas, Forbes, 1905, p. 142.)
Melanoplus bivittatus Say.
Melanoplus differentialis Uhler.
Melanoplus femur-rubrum DeGeer.
Melanoplus atlanis Riley.
Dissosteira carolina Linn.
Gryllus pennsylvanicus Burm.

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* Contribution No. 57 from the Entomological Laboratory, Kansas State Agricultural College. This paper embodies some of the results of the investigations undertaken by the author in the prosecution of project No. 92 of the Kansas Agricultural Experiment Station.